

Thuja occidentalis - Betula alleghaniensis Forest

COMMON NAME	Northern White-cedar - Yellow Birch Forest
SYNONYM	Northern White Cedar - Yellow Birch Forest
PHYSIOGNOMIC CLASS	Forest (I)
PHYSIOGNOMIC SUBCLASS	Mixed evergreen-deciduous forest (I.C)
PHYSIOGNOMIC GROUP	Mixed needle-leaved evergreen - cold-deciduous forest (I.C.3)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (I.C.3.N)
FORMATION	Mixed needle-leaved evergreen - cold-deciduous forest (I.C.3.N.a)
ALLIANCE	THUJA OCCIDENTALIS - BETULA ALLEGHANIENSIS FOREST ALLIANCE

CLASSIFICATION CONFIDENCE LEVEL 2

USFWS WETLAND SYSTEM TERRESTRIAL

RANGE

Isle Royale National Park

This community is found primarily at the southwest end of the island; the eastern-most site sampled is west of Chickenbone Lake, most of the sites are near Windigo and Feldtmann Ridge, where it is not uncommon.

Globally

This community is found in northern Minnesota, northern Wisconsin, northern Michigan, and Ontario. It is reported from two ecoregion subsections in the western Lake Superior basin.

ENVIRONMENTAL DESCRIPTION

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This community occupies gentle to somewhat steep slopes facing northwest, northeast, or east. Sometimes it occurs in a ravine with a small stream running through. It usually occurs at elevations from about 700 to 1170 feet.

Globally

This community is found on both poorly drained lowland soils, occasionally bordering on wet, organic soils (Beals and Cottam 1960, Chambers *et al.* 1997), and gentle to somewhat steep northerly slopes (C. Reschke personal communication 1999). The soil is typically moderately acidic sandy clay with a thin litter layer.

MOST ABUNDANT SPECIES

Isle Royale National Park

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Thuja occidentalis</i> , <i>Betula alleghaniensis</i>
Short shrub	<i>Rubus parviflorus</i>
Forb	<i>Clintonia borealis</i> , <i>Cornus canadensis</i>

Globally

<u>Stratum</u>	<u>Species</u>
Tree canopy	<i>Thuja occidentalis</i> , <i>Betula alleghaniensis</i>
Dwarf-shrub	<i>Cornus canadensis</i>
Forb	<i>Clintonia borealis</i>

CHARACTERISTIC SPECIES

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Thuja occidentalis, *Betula alleghaniensis*

Globally

Thuja occidentalis, *Betula alleghaniensis*

VEGETATION DESCRIPTION

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White cedar - yellow birch forest is a closed canopy, mixed evergreen and deciduous forest. Canopy cover varies from about 60 to 80%; the most abundant trees are *Thuja occidentalis* (25 to 60% cover), *Betula alleghaniensis* (15 to 60% cover), *Betula papyrifera* (5 to 25% cover), and *Picea glauca* (5 to 25% cover). Cover of subcanopy trees is about 10 to 20%, mostly *Betula alleghaniensis* and *Thuja occidentalis* (each 5 to 25% cover). Cover of tall shrubs varies from 0 to 30%, *Picea glauca* is

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Isle Royale National Park

the most common tall shrub. Cover of short shrubs varies from 5 to 60%; the most abundant short shrubs are *Rubus parviflorus* (25 to 50% cover), *Sorbus decora* (1 to 10% cover), and *Acer spicatum* (1 to 5% cover). Cover of herbs varies from 40 to 90%; the most abundant herbs are *Clintonia borealis*, *Cornus canadensis*, *Lycopodium annotinum*, *Mitella nuda*, *Athyrium filix-femina*, *Phegopteris connectilis*, and *Symplocarpus foetidus*. Cover of mosses and lichens varies from 5 to 30%; the most common lichens are epiphytic *Parmelia* spp. and *Usnea* spp. *Hylocomium splendens* is a common groundlayer moss.

Globally

The canopy of this community is dominated by *Thuja occidentalis* and a variety of hardwoods, most typically *Betula alleghaniensis*, *Betula papyrifera*, and *Populus tremuloides*, but occasionally *Acer rubrum*, *Acer saccharum* and *Fraxinus nigra*. Associated conifers include *Abies balsamea*, *Picea glauca*, and, rarely, *Tsuga canadensis*. The understory usually contains a well developed shrub/sapling layer, including *Abies balsamea*, *Acer spicatum*, *Corylus cornuta*, *Diervilla lonicera*, *Linnaea borealis*, *Ribes triste*, *Rubus pubescens*, and *Taxus canadensis*. Herbaceous species include *Aralia nudicaulis*, *Aster macrophyllus*, *Clintonia borealis*, *Coptis trifolia*, *Cornus canadensis*, *Dryopteris carthusiana*, *Galium triflorum*, *Gymnocarpium dryopteris*, *Lycopodium* spp., *Maianthemum canadense*, *Mitella nuda*, *Onoclea sensibilis*, and *Trientalis borealis*. Moss species include *Hylocomium splendens*, *Pleurozium schreberi*, *Rhytidiadelphus triquetrus*, and others (Minnesota NHP 1993, Chambers *et al.* 1997). Diagnostic features include the mixed dominance of *Thuja occidentalis* and hardwoods, particularly *Betula alleghaniensis*, in an essentially upland site type.

OTHER NOTEWORTHY SPECIES

Isle Royale National Park

Information not available

CONSERVATION RANK G2Q. There are probably fewer than 100 occurrences of this community rangewide. It is reported from Minnesota (where it is ranked S2), Wisconsin (S?), Michigan (S?), and Ontario (S?). Currently there is only one occurrence documented from Minnesota. Minimal data on current acreage are available; the one occurrence documented from Minnesota has 14 acres. It is likely that many stands have been degraded by logging. This community is reported from two ecoregion subsections in the western Lake Superior basin.

DATABASE CODE CEG002450

MAP UNITS 16

COMMENTS

REFERENCES

- Beals, E. and G. Cottam. 1960. The forest vegetation of the Apostle Islands, Wisconsin. Ecology 41:743-751.
- Chambers, B.A., B.J. Naylor, J. Nieppola, B. Merchant, P. Uhlig. Field Guide to Forest Ecosystems of Central Ontario. Southcentral Science Section (SCSS) Field Guide FG-01, Ontario Ministry of Natural Resources, North Bay, Ontario, Canada. 200 pp.
- Minnesota Natural Heritage Program. 1993. Minnesota's native vegetation: A key to natural communities. Ver. 1.5. Minn. Dep. Nat. Resour., Nat. Heritage Prog. St. Paul, Minn. 110 p.